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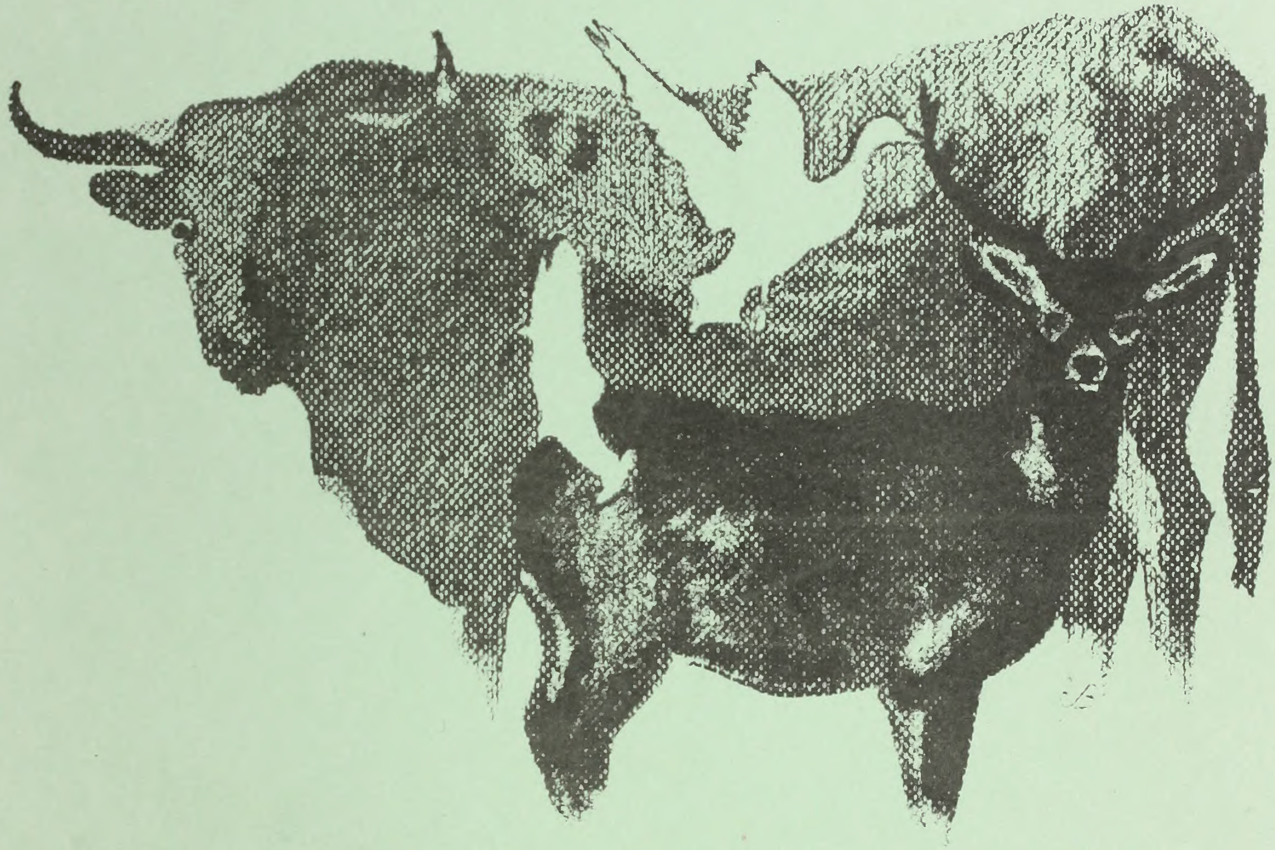

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LIVESTOCK - WILDLIFE INTERACTIONS ON PUBLIC LANDS IN NEW MEXICO: A BIBLIOGRAPHIC STUDY

By
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Contract No. 14-16-0002-77-906

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Fish and Wildlife Service
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The authors of this report are all associated with New Mexico State University, Department of Fishery and Wildlife Sciences in Las Cruces, New Mexico. Sanford D. Schemnitz (Principle Investigator) is the Department Head. Donald G. DeLorenzo, Charles J. Ault, and Eric A. Bigelow are all research associates.

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SECTION A

JOB COMPLETION REPORT
LITERATURE SEARCH PROJECT

Impacts of Resource Management Practices on Key Wildlife and Endangered Plant Habitats on Public Lands in New Mexico

Fish and Wildlife Service Contract
No. 14-16-0002-77-906

From

Department of Fishery and Wildlife Sciences
New Mexico State University
Las Cruces, New Mexico

November 15, 1978

Sanford D. Schemnitz (Principle Investigator)
Donald G. DeLorenzo, Charles J. Ault and Eric A. Bigelow (Research Assistants)

Introduction:

The Fish and Wildlife Service's role and purpose in New Mexico wildlife management is the protection and enhancement of fish and wildlife resources on public lands. At present, public lands comprise approximately 40 percent of New Mexico. A significant portion of this land is inhabited by fish and/or wildlife and is concurrently utilized by livestock. Specific interactions and relationships result from this multiple use of land. A literature search was conducted to develop a reference index and literature base which will aid in identifying these interactions and relationships. The reference index and literature base will be utilized by biologists of the Albuquerque Field Office (AFO) in formulating assessments of grazing management practices.

Procedures:

The reference index and literature base have been developed through a systematic sequence of procedures. Initially, computerized literature searches were conducted to obtain a large quantity of literature titles which indicated livestock-wildlife interaction. The first search entitled "Interrelationships between livestock and wildlife," was conducted through the U.S. Fish and Wildlife Service, Information Service. The second was conducted through the Department of the Interior Natural Resource Library using key word descriptors. A third computer search, entitled "Livestock and Wildlife," conducted by the Technological Application Center for the Bureau of Land Management, Socorro District, was reviewed while results of the first two searches were pending. It was subsequently learned that the third computer search had been conducted through the Natural Resource Library and, therefore, would overlap considerably with the second computer search. It was, therefore, deemed uneconomical to purchase a portion of, or complete copy of this search (cost estimate: $50 - $800).

During the two month period between initiation of computer searches and receipt of results, interlibrary loan privileges were established. The New Mexico State University interlibrary loan services were more expedient and, therefore, exclusively used in preference to those of University of New Mexico. A physical search of in-house, state, and federal agency libraries was conducted to obtain relevent citations from bibliographies and literature cited sections of published works. The result was a few applicable articles for review.

Computer search results were obtained and titles reviewed. Titles indicating livestock-wildlife interactions were requested from their respective sources for review. A filing system was then established to facilitate usage of literature obtained upon request or found by physical search. After the filing system had been organized articles were located and reviewed for applicability. Pertinent literature cites found in the bibliography of these articles were added to the list of articles for review.

Constant coordination was conducted with various biologists of state and federal agencies and universities throughout the west. Obscure literature, published and unpublished, was obtained which might have otherwise been overlooked.

Description:

A literature base and reference index were compiled to provide ready access to literature applicable to New Mexico. The literature base is comprised of 100 reviewed and applicable articles located in the AFO library. This literature has been shelved in sequential order of acquisition, under the call letter

"A". The reference index includes a card file and rapid search index designed to provide a rapid means of reviewing and obtaining pertinent information. The entire system has been designed to facilitate future expansion.

The literature base may be utilized by means of the card file and/or rapid search index. The card file provides access to the 100 articles shelved in the AFO library. In addition to the card file, shelf-list cards have been prepared for all 143 articles listed in the rapid search index. Shelf-list cards for articles not yet obtained will be used to prepare cards for the card file as these articles are secured. To maintain consistency with the AFO, library cards have been prepared in Library of Congress format. Call numbers for these cards are composed of two elements: call letter and indexing number. The call letter is used to identify literature contained in the project file. The second element, the index number (accession number) indicates year and sequential order of acquisition. For example, the fourth article reviewed in 1978 has been assigned the call number $\overset{A}{78\text{-}4}$. Since the literature is shelved sequentially, the article is fourth in the 1978 series on the library shelf.

Literature is cross-referenced and may be located in the card file under species, state, agency, author and title entries. In addition, some articles may be located by searching key descriptors relating to the subject of interest. Once the article(s) of interest has(ve) been identified in the card file it may then be obtained in the manner described in the preceding paragraph. As previously mentioned, articles not yet obtained will not be listed in the card file. If you desire information contained in these articles or if a quick review of an article's contents is desired, the rapid search index may be utilized.

The rapid search index has been shelved beside the literature in the position $\overset{A}{78\text{-}0}$. To provide a rapid means of reviewing the literature, the index has been organized alphabetically by species. Included in the index are the following: table of contents; chronology; key; and listings of literature by appropriate species. Expansion of the index is facilitated by the literature being listed sequentially by index number, under appropriate species' listings. Information supplied by the rapid search index includes: (1) first five letters of author's name; (2) state; (3) agency; (4) date of publication; (5) obtainment status; (6) species:grazing; (7) type of impact; (8) and ratings of habitat, competition, food habits and article quality.

To effectively use the rapid search index you must either have used the card file initially or be searching for material pertaining to a specific species. After the card file has been perused and call numbers obtained, the chronology is then used to locate articles in the rapid search index. This sequence of steps is necessary because the rapid search index is organized by species rather than article titles.

In the chronology indexing numbers are listed sequentially followed by species categories. It is, therefore, necessary to know the call number of the article. To review the article, search the index for the species indicated by chronology. If you are seeking material pertaining to a specific species, refer to the table of contents where species categories are listed alphabetically.

A key to the rapid search index precedes the index. Abbreviations and rating systems used in the index are identified and explained. For additional information the bibliography of this report may be consulted to obtain a citation and short description of the article.

Accomplishments:

Prior to initiation of this report, information pertaining to livestock-wildlife interrelationships was not readily available. This project has compiled and organized pertinent literature into a reference index and literature base which can be easily and efficiently utilized. A vast amount of literature searching and reviewing was required to locate and screen relevent literature. Approximately 8,000 titles and articles were reviewed and only 143 were found to be applicable. Of these, 100 articles have been obtained and shelved in the AFO library. To facilitate use of this literature, a card file and rapid search index have been developed. Applicable, quality literature can now be readily obtained whereas in the past it was a tedious procedure to obtain this material.

In addition to products required by contract, indices organized by state, corporate author, title and author will also be included. These indices will be useful in locating information. Furthermore, to facilitate locating literature in the AFO library, a second set of catalog cards will be made as time permits. This set of cards will be integrated into the existing card catalog maintained for the AFO library, thereby allowing the literature to be utilized as an information source for subjects other than livestock-wildlife interactions.

SECTION B

LIVESTOCK GRAZING IMPACTS ON WILDLIFE

AN ANNOTATED BIBLIOGRAPHY

Impacts of Resource Management Practices
on Key Wildlife and Endangered Plant
Habitats on Public Lands in New Mexico

By

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Eric A. Bigelow
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Anderson, M. E. 1956. A waterfowl nesting study on the grasslands, Merced County, California. California Fish Game 42(2):117-130.
California; cattle destruction of waterfowl nests in grasslands.

Anderson, M. E. 1963. Dugout modification study, 1960, 1961, 1962, South Dakota. South Dakota Dep. Game, Fish, Parks P-R Proj. Rep., W-75-R-5. 35pp.
South Dakota; cattle grazing and trampling impacts on vegetation were used to determine the value of shallow end-excavation to improve watering dugouts as waterfowl habitat.

Anderson, M. E., and R. J. Scherzinger. 1975. Improving the quality of winter forage for elk by cattle grazing. J. Range Manage. 28(2):120-125.
Oregon; livestock exclusion allowed vegetation to become rank, which had a negative impact on elk. The impacts of grazing, snowmobiling and other factors on elk were mentioned.

Baker, B. D. 1959. A detailed study of range forage by use of fenced exclosures. Colorado Div. Wildl. Proj. Rep., W-101-R-1. 71pp.
Colorado; the effects of grazing species on forage, determined by the use of exclosures.

Baker, B. D. 1964. Forage plant utilization by elk on controversial ranges. Colorado Div. Wildl. Proj. Rep., W-101-R-5. 8pp.
Colorado; stocking rates and forage utilization by elk and cattle in the winter and summer.

Bear, G. D., and G. W. Jones. 1972. History and distribution of bighorn sheep in Colorado. Colorado Div. Wildl. Monogr. 231pp.
Colorado; the adverse effects of cattle grazing on bighorn sheep. Bighorn distribution and abundance are decreasing due to many factors.

Bennett, L. J. 1937. Grazing in relation to the nesting of the bluewing teal. Trans. N. Am. Wildl. Nat. Resour. Conf. 2:393-397.
Iowa; a study indicating a better grazing scheme for duck nesting areas. Restricted grazing brought about increased duck nesting.

Berwick, S., and M. Aderhold. 1968. A history of land use and herd dynamics in a Montana population of bighorn sheep. Northwest Sci. 42(1):30.
Montana; an indication of bighorn sheep competition with domestic sheep and cattle.

Black, H. L., and N. C. Frischknecht. 1971. Relative abundance of mice on seeded sagebrush-grass range in relation to grazing. For. Serv. Intermountain For. Range Exp. Stn. Res. Note INT-147. 8pp.
Utah; the types and relative abundance of small rodents in relation to different types of grasses and grazing practices. Mice were positively or negatively impacted by grazing depending on species.

Boeker, E. L., and E. B. Bolen. 1972. Winter golden eagle populations in the southwest. J. Wildl. Manage. 36(2):477-484.
New Mexico and Texas; possible golden eagle predation on sheep and goats during the winter and early spring was indicated.

Boussu, M. F. 1954. Relationship between trout populations and cover on a small stream. J. Wildl. Manage. 18(2):229-239.
Montana; the effect of streamside vegetation removal on trout populations. Weight and numbers decreased.

Boyd, J. M. 1960. Studies of the differences between the fauna of grazed and ungrazed grassland in Tiree, Argyll. Proc. Zool. Soc. London 135:33-54.
Argyll; an insect abundance comparison between grazed plots as opposed to ungrazed plots indicated that grazing was both beneficial or detrimental depending on the insect species.

Brown, D. E. 1978. Grazing, grassland cover and gamebirds. Arizona Game and Fish Dep. 17pp.
Western U. S.; a review and summary of the impacts of livestock on gallinaceous birds. Populations in general have been depressed by grazing.

Brown, R. L. 1971. Ecological study of Mearns' quail. U. S. For. Serv. Prog. Rep., W7815. 14pp.
Arizona; food habits and abundance of Mearns' quail and the effects of grazing upon the quail. Heavily grazed pastures are more productive for Mearns' quail than are lightly grazed pastures.

Bue, I. G., L. Blankenship, and W. H. Marshall. 1952. The relationship of grazing practices to waterfowl breeding populations and production on stock ponds in western South Dakota. Trans. N. Am. Wildl. Nat. Resour. Conf. 17:396-414.
South Dakota; a description of preferred nesting cover and the relationship between nesting density and grazing intensity.

Bue, I. G., H. G. Vhlig, and J. D. Smith. 1964. Stock ponds and dugouts. Pages 391-398 in J. P. Linduska, eds. Waterfowl tomorrow. U. S. Gov. Printing Office.
North and South Dakota; the impacts of grazing upon waterfowl in prairie potholes and dugouts.

Burgess, H. H., H. H. Prince, and D. L. Trauger. 1965. Blue-winged teal nesting success as related to land use. J. Wildl. Manage. 29(1):89-95.
Iowa; nesting density and preferred cover in relation to grazed and ungrazed land. Moderately grazed grasslands provided better nesting habitat than did ungrazed areas.

Busack, S. D., and R. B. Bury. 1974. Some effects of off-road vehicles and sheep grazing on lizard populations in the Mojave desert. Bio. Conserv. 6(3):179-183.
California; the effects of road vehicles and sheep grazing on a lizard population were negative. Sheep grazing reduced ground cover necessary for certain lizard species.

Campbell, R. B. 1976. Elk-hunter-livestock interactions in the Missouri River breaks. Montana Fish and Game Dep. Prog. Rep., W-130-R-6. 41pp.
Montana; livestock and wildlife food habits with a reference to elk-livestock interactions. Grass was deemed the principal item in the diet of elk.

Capel, S. W. 1965. The relationship between grazing and predator activity in four types of waterfowl nesting cover. M.A. Thesis. Univ. of Missouri. 78pp.
Missouri; the effects of grazing on waterfowl production were generally detrimental but under some conditions could be beneficial.

Clark, J. P. 1977. Effects of experimental management schemes on production and nesting ecology of ducks at Malheur National Wildlife Refuge. M.S. Thesis. Oregon State Univ. 66pp.
Oregon; the effects of mowing and grazing intensities on duck nesting. Nesting densities decreased with increased grazing or mowing

Constan, K. J. 1972. Winter foods and range use of three species of ungulates. J. Wildl. Manage. 36(4):1068-1076.
Montana; range use, food habits and competition between bighorn sheep, elk and mule deer. Competition was slight between the three species, but there is possibility for severe competition between elk and bighorn sheep.

Crawford, J. A., and E. G. Bolen. 1976. Effects of land use on lesser prairie chickens in Texas. J. Wildl. Manage. 40(1):96-104.
Texas; the effects of different land uses on the lesser prairie chicken.

Creston Valley Wildlife Management Authority. 1974. Habitat requirements for ground-nesting waterfowl and effect of grazing and other cover removal activities on nesting. Creston Valley Wildl. Manage. Area, Creston, British Columbia. 36pp. Unpublished.
U.S.; a literature review of livestock impacts on waterfowl.

DeArment, R. 1951. Effects of agricultural trends. Oklahoma Dep. Wildl. Conserv. Proj. Rep., W-44-R-1. 14pp.
Oklahoma; a general statement of the negative impacts of livestock on wildlife in intensively cultivated areas.

Doell, D. D. 1966. The carrying capacities of certain range types for deer and domestic livestock on the forage plants of these animals. Utah Div. Wildl. Resour. Proj. Rep., W-105-R-2. 5pp.
Utah; observations on vegetation of a summer range which has been grazed by cattle, domestic sheep and mule deer. Vegetative composition did not change.

Dusek, G. L. 1975. Range relations of mule deer and cattle in prairie habitat. J. Wildl. Manage. 39(3):605-616.
Montana; food habits of, relations of and competition between mule deer and cattle in a prairie habitat. The study indicated no significant forage competition between mule deer and cattle.

Ellis, J. E. and M. Travis. 1975. Comparative aspects of foraging behavior of pronghorn antelope and cattle. J. Appl. Ecol. 12(2):411-420.
Colorado; a comparison of the feeding behaviors of cattle and pronghorn antelope. Several aspects of grazing behavior are similar, suggesting that competition exists.

Errington, P. L. 1937. Habitat requirements of stream-dwelling muskrats. Trans. N. Am. Wildl. Nat. Resour. Conf. 2:411-416.
Iowa; the overgrazing and trampling negatively effected the food base of a small stream habitat, and the subsequent effects on the muskrat population.

Eustace, C. D. 1966. Elk-livestock relationships to the Madison-Wall Creek Game Range. Montana Fish and Game Dep. Proj. Rep., W-73-R-11. 4pp.
Montana; an elk-livestock diet comparison and vegetational analysis of four exclosures.

Eustace, C. D. 1967. Elk-livestock relationships to the Madison-Wall Creek Game Range. Montana Fish and Game Dep. Proj. Rep., W-73-R-12. 62pp.
Montana; the food habits, range use and relationships of livestock and elk in three vegetation zones.

Evans, K. E., and R. R. Kerbs. 1977. Avian use of livestock watering ponds in western South Dakota. U.S. Rocky Mountain For. Range Exp. Stn. Tech. Rep. RM-35. 11pp.
South Dakota; the effects of rest-rotation grazing on waterfowl in stock ponds. Unrestricted grazing is detrimental in most cases.

Fitch, H. S. 1948. A study of coyote relationships on cattle range. J. Wildl. Manage. 12(1):73-78.
California; coyote relations with and predation on cattle. Relations of coyotes and range cattle are generally harmonious.

Fitch, H. S., and J. R. Bentley. 1949. Use of California annual-plant forage by rodents. Ecology 30(3):306-321.
California; data on rodent feeding habits indicates possible competition with livestock.

Flinders, J. T., and R. M. Hansen. 1975. Spring population responses of cottontails and jackrabbits to cattle grazing shortgrass prairie. J. Range Manage. 28(3):290-293.
Colorado; jackrabbit and cottontail abundance correlated to cattle grazing intensities. Grazing may enhance or detract from habitat suitability depending on area, vegetation type, level of grazing intensity and species of rabbit.

Frary, L. G. 1955. Vegetation succession studies. New Mexico Dep. Game and Fish Proj. Rep., W-77-R-2. 7pp.
New Mexico; the plant succession within a prairie chicken habitat and an evaluation of management practices on nongrazed, limited grazed, overgrazed and burned areas.

Gaufin, D. M., A. D. Smith, W. L. Robinette, and O. Julander. 1950. Range for big game and livestock in Utah. Utah Div. Wildl. Resour. Bull. 2. 24pp.
Utah; the general concepts pertaining to multiple range use by cattle, sheep and mule deer.

George, H. 1967. Grazing effects on the San Luis Wasteway, Merced County, California. California Dep. Fish and Game Proj. Rep., W-30-R-19. 31pp.
California; forage utilization percentages by sheep and cattle with relation to waterfowl food and habitat.

Gjersing, F. M. 1975. Waterfowl production in relation to rest-roation grazing. J. Range Manage. 28(1):37-42.
Montana; retention ponds verses dugouts in relation to waterfowl productivity. Rest-rotation and the timing of pasture use relationships to waterfowl productivity.

Glover, F. A. 1956. Nesting and production of the blue-winged teal (Anas disors Linnaeus) in northwest Iowa. J. Wildl. Manage. 20(1):28-46.
Iowa; the impacts of differing grazing intensities on blue-winged teal production with reference to nesting, predation, management and humane interference.

Goodrum, P. D. 1961. The grey squirrel in Texas. Texas Parks and Wildl. Dep., Bull. 42.
Texas; livestock and hog impacts on a hardwood riparian habitat and associated wildlife.

Greenwell, G. A. 1952. Farm ponds--their utilization by wildlife. Missouri Conserv. Comm. P-R Proj. Rep., 13-R-1. 26pp.
Missouri; grazing impacts on wildlife and wildlife cover of farm ponds. Grazing is extremely destructive to wildlife cover and food.

Gunderson, D. R. 1968. Floodplain use related to stream morphology and fish populations. J. Wildl. Manage. 32(3):507-514.
Montana; grazed verses ungrazed banks of a stream in relation to aquatic biomass production. Trout were more numerous and weighed more in the ungrazed sections of the stream.

Gunnell, F., and A. G. Smith. 1972. Pothole community management for livestock and wildlife in the intermountain region. J. Range Manage. 25(3): 237-240.
Idaho; cattle grazing and trampling had negative effects on vegetation, nesting sites and escape cover in an intermountain pothole habitat.

Halloran, A. F. 1943. Management of deer and cattle on the Aransas National Wildlife Refuge, Texas. J. Wildl. Manage. 7(2):203-216.
Texas; food habits data and management recommendations for whitetail deer and cattle.

Hamerstrom, F. N., Jr., O. E. Mattson, and F. Hamerstrom. 1957. A guide to prairie chicken management. Wisconsin Conserv. Dep., Tech. Wildl. Bull. 15. 128pp.
Wisconsin; differing grazing intensities have differing impacts on prairie chickens.

Hamerstrom, F. N., and F. Hamerstrom. 1961. Status and problems of North American grouse. Wilson Bull. 73(3):284-294.
U.S.; a general statement pertaining to the status of the grouse, with reference to cattle grazing causing a general decline in grouse populations.

Hamerstrom, F., and F. Hamerstrom. 1963. The symposium in review. J. Wildl. Manage. 27(4):869-887.
U.S.; the impacts of land use practices and grazing on the prairie chicken. Also prairie chicken habitat information.

Hansen, R. M., and L. D. Reid. 1975. Diet overlap of deer, elk, and cattle in southern Colorado. J. Range Manage. 28(1):43-47.
Colorado; dietary overlaps of deer, elk and cattle determined on a seasonal basis. Dietary overlap was greatest during the summer for each respective overlap.

Hansen, R. M., and R. C. Clark. 1977. Foods of elk and other ungulates at low elevations in northwestern Colorado. J. Wildl. Manage. 41(1):76-80.
Colorado; dietary overlaps of mule deer, elk, cattle and wild horses.

Hansen, R. M., R. C. Clark, and W. Lawhorn. 1977. Foods of wild horses, deer, and cattle in the Douglas Mountain area, Colorado. J. Range Manage. 30(2):116-118.
Colorado; a dietary breakdown and discussion of intraspecific competition of ungulate species. The dietary overlap between deer and wild horses or cattle was negligible while wild horse cattle overlap was significant.

Hawthorne, V. M. 1972. Coyote food habits in Sagehen Creek Basin, northeastern California. California Fish Game 58(1):4-12.
California; coyote food habits and predation on sheep and cattle.

Hilliard, M. A. 1974. The effects of regulated livestock grazing on waterfowl production. M.S. Thesis. Utah State Univ. 96pp.
Utah; uncontrolled cattle grazing will negatively impact waterfowl due to removal of vegetation.

Hoffman, D. M. 1963. The lesser prairie chicken on Colorado. J. Wildl. Manage. 27(4):726-732.
Colorado; grazing animals are maintaining a short grass disclimax. Moderate grazing has a positive impact on the prairie chicken.

Hoffmann, W. M. 1974. The Fresno kangaroo rat study. California Dep. Fish and Game Proj. Rep., W-54-R. 26pp.
California; kangaroo rat densities and distributions on grazed and ungrazed range. Moderately and heavily grazed areas seem to be preferred over nongrazed areas.

Howard, W. E., K. A. Wagnon, and R. J. Bentley. 1959. Competition between ground squirrels and cattle for range forage. J. Range Manage. 12(3): 110-115.
California; ground squirrel and cattle competition for forage. The greatest amount of competition occurred for winter forage.

Hubbard, R. E., and R. M. Hansen. 1976. Diets of wild horses, cattle, and mule deer in the Piceance Basin, Colorado. J. Range Manage. 29(5):389-392.
Colorado; the food habits of wild horses, cattle and mule deer for three altitude zones. Diets of cattle and wild horses are highly comparable while wild horse or cattle diet overlap with mule deer is low.

Hungerford, C. R. 1970. Response of Kaibab mule deer to management of summer range. J. Wildl. Manage. 34(4):852-862.
Arizona; livestock management practices which decreased competition.

Illige, D. J. 1956. Forage production and utilization. New Mexico Dep. Game and Fish Proj. Rep., W-75-R-3. 17pp.
New Mexico; livestock and mule deer impacts on forage production and annual utilization of forage species.

Interstate Deer Herd Committee. 1949. Third progress report on the cooperative study on the interstate deer herd and its range. California Fish Game 35(2):115-134.
California, Oregon; the forage species and forage utilized by livestock and deer.

Jackson, A. S., and R. DeArment. 1963. The lesser prairie chicken in the Texas Panhandle. J. Wildl. Manage. 27(4):733-737.
Texas; the effects of land use on prairie chickens. Overgrazing has caused the prairie chicken populations to stay at a low level.

Jackson, A. S., and H. Green. 1964. Quail food habits, food availability, and influence of grazing practices. Texas Parks and Wildl. Dep. Proj. Rep., W-88-R-3. 34pp.
Texas; the effects of habitat manipulation on quail foods and feeding habits. Cattle grazing did not exert a significant impact.

Jacobs, K. F. 1959. Restoration of the greater prairie chicken. Oklahoma Dep. Wildl. Conserv. 42pp.
Oklahoma; livestock grazing had negative impacts on prairie chickens.

Jensen, C. H. 1968. The carrying capacities of certain range types for deer and domestic livestock and the forage habits of these animals. Utah Dep. Fish and Game Proj. Rep., W-65-R-9, 10, 11 and W-105-R-1, 2, 3, 4. 17pp.
Utah; sheep and deer preferred shrubs while cattle utilized all classes of forage equally.

Jensen, C. H., and A. D. Smith. 1971. The effect of grazing animals upon winter game ranges. Utah Dep. Fish and Game Proj. Rep., W-105-R. 34pp.
Utah; sheep grazing impacts on and a sheep grazing scheme for big-game winter range. Grazing is tolerable only during the early part of the grazing season if there are to be no negative impacts.

Julander, O. 1952. Deer and livestock competition in Utah. Proc. Western Assoc. Game Fish Comm. 32:79-85.
Utah; the factors which influence competition between sheep, cattle and mule deer are grazing numbers, dietary preference and grazing patterns. These are explained and management suggestions for dealing with them are made.

Julander, O. 1962. Range management in relation to mule deer habitat and herd productivity in Utah. J. Range Manage. 15(5):278-281.
Utah; the impacts on wildlife and wildlife habitat due to overgrazing.

Julander, O., and D. E. Jeffrey. 1964. Deer, elk, and cattle range relations on summer range in Utah. Trans. N. Am. Wildl. Nat. Resour. Conf. 29:404-413.
Utah; range relationships of deer, elk and cattle. The three species of ungulates generally utilized different habitat types.

Kimbal, J., and F. Savage. 1977. Diamond Fork aquatic and range habitat improvement. U. S. For. Serv. 19pp.
Utah; the relationships between riparian vegetation and aquatic communities and the impacts caused by differing management practices.

Kirsch, L. M. 1969. Waterfowl production in relation to grazing. J. Wildl. Manage. 33(4):821-828.
North Dakota; cattle impacts on water fowl production and management.

Klebenou, D. A., and R. Beal. 1978. Riverside stabilization and its interaction with wild and domestic animals. Univ. of Nevada Prog. Rep., NEV00027. Unpublished.
Nevada; cattle effects on streamside vegetation and bank stabilization.

Knapp, S. J. 1972. Range use of mule deer prior to initiation of rest-rotation grazing for cattle on the Ft. Howes Ranger District, Custer National Forest, Montana. Montana State Univ. Proj. Rep., W-120-R-2, 3. 50pp.
Montana; seasonal distribution, range use and forage competition between mule deer and cattle. Some land-use competition and very little forage competition was indicated.

Knowles, C. J. 1975. Range relationships of mule, deer, elk, and cattle in a rest rotation grazing system during summer and fall. M. S. Thesis. Montana State Univ. 111pp.
Montana; population data, range use data and food habits data for deer, elk and cattle. Also a management scheme for efficient forage utilization.

Kozlik, F. M. 1966. Grazing effects on the San Luis Wasteway, Merced County, California - 1965. California Dep. Fish and Game Proj. Rep., W-30-R-18. 10pp. 10pp.
California; forage utilization percentages of sheep and cattle, with reference to the impacts upon waterfowl and habitat.

Lauer, J. L., and J. M. Peek. 1976. Big game-livestock relationships on the bighorn sheep winter range, East Fork Salmon River, Idaho. Univ. Idaho For. Wildl. Range Exp. Stn. Tech. Bull. 25. 44pp.
Idaho; the forage competition between mule deer, bighorn sheep and cattle on a winter range. Competition was greatest in spring when all three ungulates utilized similar forage.

Lehmann, V. W. 1941. Attwater's prairie chicken its life history and management. U. S. Fish and Wildl. Serv., North Am. Fauna 57. 65pp.
Livestock impacts on prairie chickens and management techniques.

Logan, T. H. 1974. Waterfowl nesting habitat associated with small impoundments in western Oklahoma. Oklahoma Dep. Wildl. Conserv. Proj. Rep., W-109-R-3. 31pp.
Oklahoma; small impoundment classification according to waterfowl nesting habitat potential with reference to cattle impacts on vegetation.

Lynch, J. J., T. O'Neal, and D. W. Lay. 1947. Management significance of damage by geese and muskrats to Gulf Coast marshes. J. Wildl. Manage. 11(1):50-76.
Texas; goose and muskrat damage to a costal marsh habitat and their relations to the cattle industry.

Mackie, R. J. 1966. Some observations on range use and food habits of domestic sheep in the Missouri River Breaks, Montana. Montana Fish and Game Dep. Proj. Rep., W-98-R-7. 11pp.
Montana; feeding habits data indicates a potential conflict of forage utilization between domestic sheep, mule deer and elk. Distribution and range use differences indicated a probable minor impact caused by sheep.

Mackie, R. J. 1970. Range ecology and relations of mule deer, elk, and cattle in the Missouri River breaks, Montana. Wildl. Monogr. 20:6-79.
Montana; range use and food habits of mule deer, elk and cattle with criteria for management. A large overlap in food habits of elk and cattle and a limited overlap between deer and cattle was indicated.

Mackie, R. J. 1978. Impacts of livestock grazing on wild ungulates. Trans. N. Am. Wild. Nat. Resour. Conf. 43:1-21.
Montana; livestock interactions with wildlife, with emphasis on ungulates of the western U. S. Negative impacts are inherent in situations where livestock and big game interact.

Martz, G. F. 1967. Effects of nesting cover removal on breeding puddle ducks. J. Wildl. Manage. 31(2):236-247.
North Dakota; cover removal influenced distribution but may not have decreased the overall breeding population.

McKean, W. T. 1959. Little Hills grazing study. Colorado Div. Wildl. Proj. Rep., W-101-R-1. 19pp.
Colorado; the amount and kind of competition between deer, sheep and cattle in enclosures under differing grazing intensities.

McKean, W. T. 1960. Little Hills grazing study. Colorado Div. Wildl. Proj. Rep., W-101-R-2. 22pp.
Colorado; type and percent utilization of forage by cattle, deer and sheep in enclosures under differing grazing intensities.

McKean, W. T., and H. E. Burdick. 1961. Little Hills grazing study. Colorado Div. Wildl. Proj. Rep., W-101-R-3. 31pp.
Colorado; type and percent utilization of forage by cattle, deer and sheep in enclosures under differing grazing intensities.

McKean, W. T., and H. E. Burdick. 1964. Little Hills grazing study. Colorado Div. Wildl. Proj. Rep., W-101-R-5. 21pp
Colorado; type and percent utilization of forage by cattle, deer and sheep in enclosures under differing grazing intensities.

McKean, W. T. 1972. Influence of livestock and mule deer upon vigor of indian ricegrass and tufted phlox on a pinon-juniper range. Colorado Div. Game, Fish, Parks, Game Information Leafl. 89. 4pp.
Colorado; livestock, sheep and mule deer impacts on indian ricegrass and tufted phlox. Significant differences in vigor did not occur when pastures were moderately grazed.

McKnight, T. L. 1958. The feral burro in the United States: distribution and problems. J. Wildl. Manage. 22(2):163-179.
Western U. S.; the impacts of feral burros on wildlife. Burros compete with livestock for water and forage.

Mollhagen, T. R., R. W. Wiley, and R. L. Packard. 1972. Prey remains in golden eagle nests: Texas and New Mexico. J. Wildl. Manage. 36(3):784-792.
Texas and New Mexico; golden eagle food habits and predation on sheep and goats.

Morris, M. G. 1967. Responses of some phytophagous insects to cessation of grazing. J. Appl. Ecol. 4:459-474.
England; grazing is detrimental to the insect populations but is necessary to maintain the grassland ecosystem.

Morris, M. G. 1973. The effects of seasonal grazing on the heteroptera and auchenorhyncha (hemiptera) of chalk grassland. J. Appl. Ecol. 10:761-780.
England; seasonal grazing impacts on insect populations and community variation was generally negative.

Mundinger, J. G. 1976. Waterfowl response to rest-rotation grazing. J. Wildl. Manage. 40(1):60-68.
Montana; vegetation and waterfowl production responses to rest-rotation grazing management. Breeding pairs, broods and species diversity increased.

Mussehl, T. W. 1963. Blue grouse brood cover selection and land-use implications. J. Wildl. Manage. 27(4):547-555.
Montana; cattle grazing impacts on Blue grouse cover and Blue grouse. Grazing can reduce plant cover to a point at which the grouse population will suffer.

Mustard, E. W., Jr. 1959. Study of browse reproduction in relation to controlled grazing in experimental pastures. Colorado Game and Fish Dep. Proj. Rep., W-101-R-1. 41pp.
Colorado; cattle, sheep and deer grazing impacts on browse plants. Cattle, deer and then sheep have the least to the greatest effect on browse-plant numbers, respectively.

National Academy of Sciences. 1976. Land use and wildlife resources. Washington, D.C. ___pp.
U. S.; livestock impacts on fauna, flora, soil and water.

Nelson, N. F. 1954. Factors in the development and restoration of waterfowl habitat at Ogden Bay Refuge, Weber County, Utah. Utah Div. Wildl. Resour. Pub. 6. 87pp.
Utah; cattle grazing impacts on waterfowl, plant succession and annual population changes.

Norris, J. J. 1950. Effect of rodents, rabbits and cattle on two vegetation types in semidesert range land. New Mexico State Agric. Exp. Stn. Bull. 353. 23pp.
New Mexico; vegetation productivity comparison on controlled and exclusion areas where rodents and cattle were excluded.

Nuegebauer, R. J. 1960. Abstract of the third annual meeting of the prairie chicken technical committee. Nat. Wildl. Federation 10pp. Unpublished.
Wisconsin; the effects of livestock grazing upon prairie chicken nesting.

Nussbaum, R. A., and C. Maser. 1975. Food habits of the bobcat, *Lynx rufus*, in the coast and cascade ranges of western Oregon in relation to present management policies. Northwest Sci. 49(4):261-266.
Oregon; information on the food habits of the bobcat, rodents occurred in the highest percentages.

Olsen, F. W., and R. M. Hansen. 1977. Food relations of wild free-roaming horses to livestock and big game, Red Desert, Wyoming. J. Range Manage. 30(1):17-20.
Wyoming; the seasonal dietary overlap of cattle, domestic sheep, wild horses, elk and antelope. Cattle, wild horses, and elk had similar diets whereas antelope and domestic sheep diets differed.

Osborn, B., and P. F. Allan. 1949. Vegetation of an abandoned prairie dog town in tallgrass prairie. Ecology 30(3):322-332.
Oklahoma; prairie dog existance and abundance as related to ungulate grazing.

Pickford, G. D., and E. H. Reid. 1943. Competition of elk and livestock for summer range forage. J. Wildl. Manage. 7(3):328-332.
Oregon; elk and domestic utilization of forage with reference to competition and production.

Quast, J. C. 1954. Rodent habitat preferences on foothill pastures in California. J. Mammal. 35(4):515-521.
California; rodent species habitat preferences and abundance in relation to grazing intensities. Grazing had both positive and negative effects, depending on the species of rodent.

Reid, L. D., and R. M. Hansen. 1973. Diets of elk, deer and cattle near Fort Garland, Colorado. Colorado State Univ. Exp. Stn. Prog. Rep., PR73-34. 2pp.
Colorado; seasonal dietary overlap between elk, deer and cattle during the summer was greatest in the case of elk and cattle.

Riordan, L. E. 1957. Differences in range vegetation resulting from grazing by deer, cattle and sheep. Proc. Soc. Am. For. 57:147-151.
Colorado; a documentation of vegetational changes due to differing forage utilization intensities.

Romano, M. N., O. A. Brunetti, C. W. Schwabe, and M. N. Rosen. 1974. Probable transmission of *Echinococcus granulosus*, between deer and coyotes in California. J. Wildl. Dis. 10:225-227.
California; transmission and prevalence of *Echinococcus granulosus* between livestock and wildlife. Areas in which livestock were absent had the highest prevalence rates of deer.

Rouse, R. 1958. Elk investigations (elk-livestock relationships). Montana Fish and Game Dep. Proj. Rep., W-73-R-3. 8pp.
Montana; food habits overlap of elk, sheep and cattle. The greatest overlap occurred between elk and sheep.

Sadler, K. C. 1972. Cottontail rabbit behavior and ecology; behavioral observations; response of cottontails to habitat manipulation. Missouri Dep. Conserv. Proj. Rep., 13-R-25. 10pp.
Missouri; improved cottontail harvest success was indicated to be associated with grazing.

Samuelson, J., and J. V. McKenzie. 1971. Exclosure studies in the badlands of western North Dakota. North Dakota Game and Fish Dep. Proj. Rep., W-67-R-12. 63pp.
North Dakota; forage utilization and long term trends in browse conditions due to deer, antelope, bighorn sheep and livestock usage.

Schemnitz, S. D. 1961. Ecology of the scaled quail in the Oklahoma panhandle. Wildl. Monogr. 8. 47pp.
Oklahoma; scaled quail food habits, habitat requirements and ecology. Reference made to habitat destruction due to trampling.

Schneegas, E. R., and R. S. Bumstead. 1977. Decline of western mule deer populations; probable cause, tentative solution. Proc. Ann. Conf. West. Assoc. Game Fish Com. 57:218-232.
Western U. S.; livestock impacts on mule deer populations.

Schwartz, C. C., J. G. Nagy, and R. W. Rice. 1977. Pronghorn dietary quality relations to forage availability and other ruminants in Colorado. J. Wild. Manage. 41(2):161-168.
Colorado; comparison of light and heavy grazing as it relates to pronghorn.

Severson, K. E., and M. May. 1967. Food preferences of antelope and domestic sheep in Wyoming's Red Desert. J. Range Manage. 20(1):21-25.
Wyoming; domestic sheep and antelope forage consumption and preferences. The overlap of utilization was small.

Shearer, L. A. 1960. Use of dugouts by breeding ducks. J. Wildl. Manage. 24(2):213-215.
South Dakota; the relationships between livestock and waterfowl in dugout habitat. Use increased as water levels approached full as cover increased.

Skovlin, J. M., P. J. Edgerton, and R. W. Harris. 1968. The influence of cattle management on deer and elk. Trans. N. Am. Wildl. Nat. Resour. Conf. 33:169-181.
Oregon and Washington; the effect of cattle stocking rates on the usage of the forage base by mule deer and elk. Cattle had a significant influence on the distribution of elk, little on deer.

Smith, A. D. 1949. Effects of mule deer and livestock upon a foothill range in northern Utah. J. Wildl. Manage. 13(4):421-423.
Utah; a vegetation comparison after exclusion of wildlife and livestock.

Smith, A. D. 1958. A study of the effects of grazing animals upon winter game ranges. Utah Div. Wildl. Resour. Proj. Rep., W-65-R-6. 4pp.
Utah; a high degree of competition between deer and cattle was indicated for certain instances.

Smith, A. D., and A. M. Sheets, Jr. 1959. A study of the effect of grazing animals upon winter game ranges. Utah Div. Wildl. Resour. Proj. Rep., W-65-R-7. 4pp.
Utah; cattle and mule deer competition for browse forage, on foothill ranges that were deteriorated, was indicated to be high.

Smith, A. D. 1959. Studies of relative carrying capacities of range types for deer and cattle use and the forage habits of the two classes of animals. Utah Div. Wildl. Resour. Proj. Rep., W-65-R-7. 3pp.
Utah; deer use did not significantly impact cattle forage availability. The greatest common use of forage occurred on browse plants.

Smith, A. D., and D. D. Doell. 1965. The carrying capacities of certain range types for deer and domestic livestock on the forage habits of these animals. Utah Div. Wildl. Resour. Proj. Rep., W-105-R-1. 7pp.
Utah; grazing impacts on a summer range caused by cattle, sheep, and deer did not significantly change the vegetation composition.

Smith, A. D., and D. D. Doell. 1968. Guides to allocating forage between cattle and big game on big game winter range. Utah Dep. Fish and Game, Publ. 68-11. 32pp.
Utah; seasonal and intensity usage of vegetation by cattle and the resulting impacts on mule deer.

Smith, J. G., and O. Julander. 1953. Deer and sheep competition, Utah. J. Wildl. Manage. 17(2):101-112.
Utah; seasonal competition and vegetational usage by deer and sheep.

Smith, R. A. 1953. A study of waterfowl production on artificial reservoirs in eastern Montana. J. Wildl. Manage. 17(3):276-291.
Montana; livestock impacts on waterfowl on reservoirs.

Snyder, W. D. 1970. Guidelines for improving scaled quail habitat. Colorado Div. Game, Fish, Parks, Game Information Leafl. 78. 3pp.
Colorado; grazing and habitat manipulation impacts on scaled quail. Light to moderate grazing can be beneficial to quail.

Steele, J. L., Jr. 1959. Controlled grazing program. Oklahoma Dep. Wildl. Conserv. Proj. Rep., W-38-D-4. 4pp.
Oklahoma; controlled grazing and minimum stocking rate impacts on quail cover and food availability. Undergrazing can reduce the quail carrying capacity to the same degree as overgrazing.

Stevens, D. R. 1966. Range relations of elk and livestock, Crow Creek Drainage, Montana. J. Wildl. Manage. 30(2):349-363.
Montana; competition and distribution of elk, sheep and cattle.

Stuth, J. W., and A. H. Winward. 1977. Livestock-deer relations in the lodgepole pine-pumice region of central Oregon. J. Range Manage. 30(2):110-116.
Oregon; food habits and dietary overlap data for cattle, sheep and deer. Sheep have a greater potential for competition with deer than do cattle. Moderate livestock usage of meadows can be beneficial for deer.

Taylor, W. P., C. T. Vorhies, and P. B. Lister. 1935. The relation of jack rabbits to grazing in southern Arizona. J. For. 35(5):490-498.
Arizona; the effects of differing grazing intensities on jack rabbits and plant community succession. Jack rabbits preferred areas with moderate grazing and forage supply.

Tester, J. R., and W. H. Marshall. 1961. A study of certain plant and animal interrelations on a native prairie in northwestern Minnesota. Occas. Pap. Mus. Nat. Hist. Univ. Minn. 8. 59pp.
Minnesota; the effects of range treatment on birds, rodents and insects were both positive and negative in nature.

Thilenius, J. F., and K. E. Hungerford. 1967. Browse use by cattle and deer in northern Idaho. J. Wild. Manage. 31(1):141-145.
Idaho; competition and browse utilization due to duel range use by cattle and whitetail deer. Cattle grazing did not impact the forage supply of the whitetail deer.

Turner, G. T. 1969. Responses of mountain grassland vegetation to gopher control, reduced grazing, and herbicide. J. Range Manage. 22(6):377-383.
Colorado; vegetation responded positively to gopher control, reduced grazing and herbicide use.

U. S. Bureau of Land Management. 1977. Draft environmental statement, the proposed Rio Puerco livestock grazing management program. U. S. Gov. Printing Office, Santa Fe, New Mexico 410pp.
New Mexico; grazing impacts on wildlife and a proposed management plan.

Wagner, F. H. 1978. Effects of livestock grazing and the livestock industry. Pages 1-62 in Wildlife and America. Counc. Environ. Quality, Washington, D. C. Preprint.
U. S.; the relationships of wild and domestic ungulates.

Ward, A. L., J. J. Cupal, A. L. Lea, C. A. Oakley, and R. W. Weeks. 1973. Elk behavior in relation to cattle grazing, forest recreation, and traffic. Trans. N. Am. Wildl. Nat. Resour. Conf. 38:327-337.
Wyoming; elk behavior and interactions with cattle, traffic and recreation were negative. Elk and cattle were similar in feeding behavior and preferences.

Weaver, R. A. 1974. Feral burros and wildlife. Proc. Vertebr. Pest Conf. 6:204-209.
California; the impacts caused by feral burros on wildlife, vegetation and soil were generally negative.

Weller, M. W., B. H. Wingfield, and J. P. Low. 1958. Effects of habitat deterioration on bird populations of a small Utah marsh. Condor 60(4):220-225.
Utah; the effects of grazing and reduced water on a small marsh habitat and wildlife population were mostly negative. Only one bird species increased in numbers.

Worley, D. E., and C. D. Eustace. 1972. Prevalence of helminth parasites in mule deer from eastern Montana. Proc. Helminthological Soc. Wash. 39(1):135-138.
Montana; the important helminth species prevalence in mule deer and the relationships of cattle to the prevalence of these species in deer. Common ranges may result in significant parasite interchanges between deer and livestock.

Young, S. 1956. A survey of big game exclosures in Utah. Utah Dep. Fish and Game, Dep. Information Bull. 24. 78pp.
Utah; the effects of grazing on vegetation and the response of vegetation to exclosures.

Zwickel, F. C., I. O. Buss, and J. H. Brigham. 1968. Autumn movements of blue grouse and their relevance to populations and management. J. Wildl. Manage. 32(3):456-468.
Washington; grazing can lower breeding densities. Narrow bands of ungrazed land can allow a significant increase in grouse populations.

Zwickel, F. C. 1972. Some effects of grazing on blue grouse during summer. J. Wildlife Manage. 36(2):631-634.
Washington; the impacts of grazing on brood size, density, courtship activity and hen success. Grazing did not seem to impact brood size or density, but did have a negative effect on hen success.

SECTION C

RAPID SEARCH INDEX

IMPACTS OF RESOURCE MANAGEMENT PRACTICES ON KEY WILDLIFE AND ENDANGERED PLANT HABITATS ON PUBLIC LANDS IN NEW MEXICO

NEW MEXICO

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KEY

I. Species: The appropriate species listing from the table of contents.

II. Index No.: The number assigned to each article.

III. Author: The first five letters of the author's last name.

IV. State: The state given in the article.

  A. Exception- New Mexico entries will have a quadrent indication following the New Mexico indication. e.g. N.E., N.W., S.E., S.W.

V. Agency: A listing of the agency or publisher responsible for the article.

VI. Date: The date of publication or release of the article.

VII. Obtain: A rating of the articles utility to the AFO staff.

  A. Rating System
  + : High value- a copy is highly desirable
  0 : Medium value- a copy is optional
  - : Low value- a copy is not needed at this time
  * : Currently on file

VIII. Grazing:

  A. The first half box is an indication of the class of livestock.
  C : cattle
  S : domestic sheep
  G : goat
  H : domestic horse
  Gen : livestock in general

  B. The second half box is a value judgement of article quality and New Mexico applicability.
  X : excellent
  G : good
  F : fair
  P : poor
  CR : casual reference
  Gen : general

KEY
(continued)

IX. Impacts: A rating of livestock-wildlife impact information and it's potential to occur in New Mexico.

A. Rating System
+ : Livestock have a positive impact on wildlife.
0 : No impacts.
- : Livestock have a negative impact on wildlife.
= : Wildlife negatively impact livestock.

X. Habitat/Competition:

A. A judgement rating of the quality and comparability or applicability of the article to New Mexico habitats.
Rating Symbols- See VIII, B

B. A judgement rating and applicability of the article to New Mexico in terms of competion for food and cover.
Rating Symbols- See VIII, B

XI. Food Habits: A judgement rating and applicability of the article to New Mexico in terms of species food habits.

Rating Symbols- See VIII, B

XII. New Mexico Applicability: A rating of the articles contents to New Mexico.

A. Rating System
1 : The information relates directly to New Mexico.
2 : The information is highly comparable for New Mexico.
3 : The information is moderately comparable for New Mexico.
4 : The information is of low comparability for New Mexico.
5 : A statement or concept may be valid for New Mexico.

CHRONOLOGY

78-001	GROUSE(BLUE and SHARP-TAILED)
78-002	DEER(MULE)
78-003	DEER(MULE)
78-004	WATERFOWL
78-005	PRAIRIE CHICKEN(LESSER and GREATER)
78-006	DEER(MULE) and ELK
78-007	ANTELOPE(PRONGHORN)
78-008	DEER(MULE), ELK and HORSE(WILD)
78-009	COYOTE
78-010	GEESE and MUSKRAT
78-011	WATERFOWL
78-012	ANTELOPE(PRONGHORN), DEER(MULE), ELK and WILDLIFE(GENERAL)
78-013	WILDLIFE(GENERAL)
78-014	DEER(MULE)
78-015	DEER(MULE)
78-016	DEER(MULE)
78-017	DEER(MULE)
78-018	ELK
78-019	ELK
78-020	PRAIRIE CHICKEN(LESSER and GREATER)
78-021	PRAIRIE CHICKEN(LESSER and GREATER)
78-022	WATERFOWL
78-023	WATERFOWL
78-024	WATERFOWL
78-025	WATERFOWL
78-026	WATERFOWL
78-027	WATERFOWL
78-028	GROUSE(BLUE and SHARP-TAILED)
78-029	GROUSE(BLUE and SHARP-TAILED)
78-030	BURRO
78-031	ELK
78-032	WATERFOWL
78-033	ELK
78-034	DEER(MULE)
78-035	ANTELOPE(PRONGHORN), ELK and HORSE(WILD)
78-036	QUAIL(BOBWHITE, GAMBLES and SCALED)
78-037	SQUIRREL(GRAY)

CHRONOLOGY
(Continued)

78-038	PRAIRIE CHICKEN(LESSER and GREATER)
78-039	PRAIRIE CHICKEN(LESSER and GREATER)
78-040	PRAIRIE CHICKEN(LESSER and GREATER)
78-041	PRAIRIE CHICKEN(LESSER and GREATER)
78-042	DEER(MULE)
78-043	WATERFOWL
78-044	WATERFOWL
78-045	WATERFOWL
78-046	WATERFOWL
78-047	WATERFOWL
78-048	WATERFOWL
78-049	DEER(MULE) and GRAZING(GENERAL)
78-050	QUAIL(BOBWHITE, GAMBLES and SCALED)
78-051	DEER(MULE) and ELK
78-052	BIRDS(GENERAL), GRAZING(GENERAL), INSECTS and RODENTS(GENERAL)
78-053	RABBIT
78-054	PRAIRIE CHICKEN(LESSER and GREATER)
78-055	QUAIL(BOBWHITE, GAMBLE and SCALED)
78-056	DEER(MULE)
78-057	DEER(MULE)
78-058	DEER(MULE)
78-059	DEER(MULE)
78-060	DEER(MULE)
78-061	DEER(MULE)
78-062	DEER(MULE)
78-063	DEER(MULE)
78-064	DEER(MULE)
78-065	DEER(MULE)
78-066	DEER(MULE)
78-067	DEER(MULE)
78-068	DEER(MULE)
78-069	DEER(MULE)
78-070	DEER(MULE)
78-071	WILDLIFE(GENERAL)
78-072	ELK
78-073	ELK
78-074	ELK

CHRONOLOGY
(Continued)

78-075	ELK
78-076	ELK
78-077	DEER (MULE)
78-078	DEER (MULE)
78-079	DEER (MULE)
78-080	DEER (MULE)
78-081	KANGAROO RAT
78-082	DEER (MULE)
78-083	HORSE (WILD)
78-084	HORSE (WILD)
78-085	PARASITES (INVERTEBRATE)
78-086	GRAZING (GENERAL)
78-087	FISH and other AQUATIC VERTEBRATES
78-088	GRAZING (GENERAL)
78-089	EAGLE (GOLDEN)
78-090	COYOTE
78-091	EAGLE (GOLDEN)
78-092	FISH and other AQUATIC VERTEBRATES
78-093	ELK
78-094	REPTILE
78-095	DEER (MULE)
78-096	RABBIT
78-097	RABBIT
78-098	GROUSE (BLUE and SHARP-TAILED)
78-099	RODENT (GENERAL)
78-100	PRAIRIE DOG
78-101	RODENT (GENERAL)
78-102	FISH and other AQUATIC VERTEBRATES
78-103	SHEEP (BIGHORN)
78-104	SHEEP (BIGHORN)
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CHRONOLOGY
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78-125	WATERFOWL
78-126	WATERFOWL
78-127	WATERFOWL
78-128	WATERFOWL
78-129	WILDLIFE(GENERAL)
78-130	DEER(MULE)
78-131	RODENT(GENERAL)
78-132	BOBCAT
78-133	QUAIL(BOBWHITE, GAMBLES and SCALED)
78-134	GOPHER
78-135	DEER(MULE)
78-136	SQUIRREL(GROUND)
78-137	FISH and other AQUATIC VERTEBRATES
78-138	WATERFOWL
78-139	DEER(MULE)
78-140	GRAZING(GENERAL)
78-141	PRAIRIE CHICKEN(LESSER and GREATER)
78-142	RODENT(GENERAL)
78-143	GROUSE(BLUE and SHARP-TAILED), PRAIRIE CHICKEN(LESSER and GREATER), and QUAIL(BOBWHITE, GAMBLE and SCALED)

SPECIES ANTELOPE (PRONGHORN)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-7	Schwa	Colo.	J. Wildl. Manage.	1977	0	C,S / G	±	F /		
78-12	U.S. Bur	NM (NW)	BLM	1977	0	C / P		F / F	P	
78-35	Olsen	Wyoming	J. Range Manage.	1977	0 *	C,S,H / G	±	F / G	G	2
78-106	Sever	Wyoming	J. Range Manage.	1967	+ *	S / G	$\underline{0}$	G / G	G	3
78-107	Ellis	Colo.	J. Appl. Ecol.	1975	+ *	C / X	$\underline{0}$	X / G	G	2

SPECIES BIRDS (GENERAL)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-52	Teste	Minn.	MInn. Div. G&F	1961	- *	C P	$\overset{+}{\underline{0}}$	G P	G	2
78-109	Lynch	Calif.	Calif. Ag.	1973	+ *	C G	0	G P	G	3

SPECIES BOBCAT

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-132	Nussb	Ore.	Northwest Sci.	1975	+ *	S / P	0 -	F / P	G	3

SPECIES BURRO

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-30	McKni	West. US	JWM	1958	-	P	-	F	P	4
78-110	Weave	Calif.	Proc. Vert. Pest.	Conf. 1974	+ *	P	-	P F	P	3

SPECIES COYOTE

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-9	Fitch	Calif.	JWM	1948	+	C P		P	F	
78-90	Hawth	Calif.	Calif. F & G	1972	+ *	C,S G	+	G	X	2

SPECIES DEER (MULE)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-2	Smith	Utah	JWM	1949		C,H / F		G /		
78-3	Hunge	Ariz.	JWM	1970		C,S / C,R		G /		
78-6	Macki	Montana	Wildl. Monogr.	1970	*	C / X	-	X / X	X	3
78-8	Hanse	Colo.	JWM	1977	*	C,H / G	0	G / X	X	2
78-12	US Bur	NM (N.W.)	B.L.M.	1977	-	C / F		F / F	P	1
78-14	Dusek	Montana	JWM	1975	- *	C / F	0	F / F	G	1
78-15	Thile	Idaho	JWM	1967	-	C / P	0	F / F	G	1
78-17	Smith	Utah	JWM	1955	0	S / F	±	G / G	G	3
78-34	Julan	Utah	JRM	1962	-	C,S / F	±	P / P	P	2
78-42	Schne	West. US	Proc. W. Assoc State G&F Comm.	1977	0	Gen / F	±	/ P		4
78-49	Musta	Colo.	Colo. G&F Dep.	1959	0 *	C,S / F	$\underline{0}$	G / F	P	3
78-51	Macki	Montana	Mont. F&G Dep.	1966	+ *	S / G	$\underline{0}$	F / F	F	3
78-56	McKea	Colo.	Colo. Div. Wildl.	1959	+ *	C,S / G	$\underline{0}$	G / G	G	3
78-57	McKea	Colo.	Colo. Div. Wildl.	1960	+ *	C,S / G	$\underline{0}$	G / G	G	3
78-58	McKea	Colo.	Colo. Div. Wildl.	1961	+ *	S,C / G	$\underline{0}$	G / G	G	3
78-59	McKea	Colo.	Colo. Div. Wildl.	1964	+ *	C,S / G	$\underline{0}$	G / G	G	3
78-60	Smith	Utah	Utah Div. Wild. Res.	1965	0 *	C,S / F	0	F / F	F	2
78-61	Jense	Utah	Utah Dep. F&G	1968	0 *	C,S / F	0	f / f	F	2

SPECIES DEER (MULE)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-62	Smith	Utah	Utah Div. Wildl. Res.	1959	- *	C / P	0	P / F	P	2
78-63	Smith	Utah	Utah Div. Wildl. Res.	1958	- *	C / P	-	P / P	P	2
78-64	Smith	Utah	Utah Div. Wildl. Res.	1959	- *	C / F	0	F / F	F	2
78-65	Doell	Utah	Utah Div. Wildl. Res.	1966	0 *	C,S / F	0	F / F	F	2
78-66	Jense	Utah	Utah Dep. F&G	1971	+ *	S / G	+ - 0	F / G	G	2
78-67	Julan	Utah	Utah Coop. Wildl. Res. Unit	1952	+ *	C,S / G	± 0	P / G	G	4
78-68	Riord	Colo.	Colo. G&F Dep.	1957	+ *	C,S / G	± 0	G / G	G	3
78-69	Young	Utah	Utah Dep. F&G	1956	+ *	C,S / G	± 0	F / G	G	2
78-70	Smith	Utah	Utah Dep. F&G	1968	+ *	C / G	+ - 0	F / G	G	2
78-77	Samue	N. Dakota	N. Dakota G&F Dep.	1971	- *	C / P	-	F / P	P	1
78-78	Illig	NM (S.W.)	NM Dep. G&F	1956	0 *	C / F	0	F / P	F	4
78-79	Inter	Calif.	Calif. F&G	1949	- *	Gen / F	0	F / P	F	2
78-80	Gaufi	Utah	Utah Dep. F&G	1950	+ *	C,S / F	+ - 0	F / F	P	3
78-82	Baker	Colo.	Colo. Div. Wildl.	1959	0 *	C,S / F	- 0	F / F	P	3
78-95	Stuth	Oregon	JRM	1977	0 *	C,S / F	- 0	F / G	G	3
78-112	Knowl	Mont.	Mont. St. Univ. M.S. Thesis	1975	0 *	C / F	- 0	F / G	G	3
78-130	Knapp	Mont.	Mont. F&G Dep.	1972	+ *	C / F	- o	F / G	G	3
78-135	Skovl	Oregon	Trans. N. Am. Wild.	1968	0 *	C / F	+ - 0	F / G	F	3

SPECIES DEER (MULE)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-139	Lauer	Idaho	Idaho Range Exp. Stn.	1976	0 *	C F	+ - 0	F G	G	3

SPECIES . DEER(WHITETAIL)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-16	Hallo	Texas	JWM	1943		C P	±	F P	F	1

SPECIES . EAGLE (GOLDEN)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-89	Mollh	NM & W. Tex.	JWM	1972	+ *	E,S,G X	=	X F	X	2
78-91	Bocke	NM & W. Tex.	JWM	1972	+ *	S,G X	=	X P	P	1

SPECIES . ELK

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-6	Macki	Mont.	Wildl. Monogr.	1970	+ *	C / X	± 0	x / x	X	2
78-8	Hanse	Colo.	JWM	1977	+ *	C,H / G	±	G / X	X	3
78-12	U.S. Bur	NM (N.W.)	BLM	1977	-	C / P		F / F	P	4
78-18	Steve	Mont.	JWM	1966	+	C,S / G	± 0	G / G	G	3
78-19	Pickf	Oregon	JWM	1943	0	S / F	+ -	G / G	G	2
78-31	Hanse	Colo.	JRM	1975	+ *	C / G	±	G / G	X	4
78-33	Ander	Oregon	JRM	1975	-	C / F	+	F / P	P	2
78-35	Olsen	Wyoming	JRM	1977	- *	C,S,H / G	+ -	F / G	G	2
78-51	Macki	Mont.	Mont. F&G Dep.	1966	+ *	S / G	- 0	F / G	G	3
78-72	Baker	Colo.	Colo. Div. Wildl.	1964	- *	C / P	0	P / P	P	3
78-73	Eusta	Mont.	Mont F&G Dep.	1966	- *	C / P	0	P / P	P	2
78-74	Eusta	Mont.	Mont. F&G Dep.	1967	0 *	C,S / F	0	F / F	F	2
78-75	Rouse	Mont.	Mont. F&G Dep.	1958	- *	C,S / P	0	P / P	P	2
78-76	Campb	Mont.	Mont. F&G Dep.	1976	0 *	C / F	-	F / P	F	2
/78-93	Ward	Wyoming	Trans. N. Am. Wild. Nat. Resour. Conf	1973	+ *	C / G	0	G / P	P	3
78-108	Reid	Colo.	Colo. State Univ. Exp. Stn.	1973	+ *	C / P	- 0	G / G	F	2
78-123	Julan	Utah	Trans. N. Am. Wildl. Nat. Resour. Conf	1964	+ *	C / G	0	G / F	P	3

SPECIES FISH and other AQUATIC VERTEBRATES

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-87	Kimba	Utah	For. Serv.	1977	+ *	C, G	-	G P	P	2
78-92	Klebe	Nevada	Univ. Nev.	1978	0	C G		G P	P	2
78-102	Bouss	Mont.	JWM	1954	+ *	P	-	G P	P	2
78-137	Gunde	Mont.	JWM	1968	+ *	C G	-	G P	P	2

SPECIES GEESE

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-10	Lynch	La.	JWM	1947	-	C / P	-	P / P		4

SPECIES GOPHERS

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-134	Turne	Colo.	JWM	1969	+ *	C G	0	G P	F	2

SPECIES GRAZING (GENERAL)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-49	Musta	Colo.	Colo. G&F Dep.	1959	0 *	C,S F	- 0	G F	P	3
78-52	Teste	Minn.	Minn. Div. G&F	1961	0 *	C F	± 0	G P	CR	2
78-86	McKea	Colo.	Colo. G&F Dep.	1972	+ *	C,S,D G	± 0	G G	F	2
78-88	Const	Mont.	JWM	1972	+ *	E,D F	- 0	G G	G	3
78-140	Wagne	Utah	W. Am. Symp.	1978	+ *	C,S,H G	± 0	G G	G	2

SPECIES . GROUSE (BLUE and SHARP-TAILED)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-1	Zwick	Wash.	JWM	1972		C / G		F		
78-28	Musse	Mont.	JWM	1963	0	C,S / F	-	G		3
78-29	Zwick	Wash.	JWM	1968	0	F	-	P		2
78-98	Hamer	West. US	Wilson Bull.	1961	0 *	C / F	-	P	None	2
78-143	Brown	US	Ariz. G&F Dep.	1978	0 *	Gen. / F	-	G / G	P	3

SPECIES HORSE(WILD)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-8	Hanse	Colo.	JWM	1977	+ *	C,H G	-	G X	X	3
78-35	Olsen	Wyoming	JRM	1977	0 *	C,H,S G	-	G G	G	2
78-83	Hanse	Colo.	JRM	1977	+ *	H,C,D G	-	G G	G	2
78-84	Hubba	Colo.	JRM	1976	+ *	H,C,D F	0	G G	G	2

SPECIES INSECTS

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-52	Teste	Minn.	Minn. Div. G&F	1961	0 *	C F	+ - 0	G P	CR	2
78-114	Morri	England	J Appl. Ecol.	1967	+ *	C,S F	+ —	F P	G	3
78-115	Morri	England	J. Appl. Ecol.	1973	+ *	S F	- 0	F F	F	3
78-117	Boyd	England	Proc. Zoo. Soc. London	1960	+ *	C,S F	-	F F	P	3

SPECIE KANGAROO RAT

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-81	Hoffm	Calif.	Calif. Dep. F&G	1974	0 *	C,W / P	+	P / P	None	3

SPECIES . MUSKRAT

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-10	Lynch	La.	JWM	1947	-	C P	-	P P		1
78-122	Errin	Iowa	Trans. N. Am. Wild. Nat. Resour. Conf.	1937	+ *	C P	-	P P	F	3

SPECIES PARASITES (INVERTEBRATE)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-85	Roman	Calif.	JWM	1974	+ *	C,S F	$\bar{0}$	G P	P	3
78-111	Smart	Tex.	JWM	1975	+ *	C P	$\bar{0}$	P P	P	3
78-116	Worle	Mont.	Proc. Helminth. Soc. of Wash.	1972	- *	C,S F	$\bar{0}$	F P	P	
78-120	Peters	Oregon	Proc. Animal Health Asso.	1973	+ *	C P	0	P P	P	3

SPECIES PRAIRIE CHICKEN (LESSER and GREATER)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-5	Crawf	Tex.	JWM	1976	0	P / P	+ -	G / P		2
78-20	Hoffm	Colo.	JWM	1963	0	G / P	+ -	G / P		3
78-21	Jacks	Tex.	JWM	1963	0	C / G	-	F / P		4
78-38	Jacob	Okla.	Okla. Dep. Wildl. Conserv.	1959	-	C / F	-	F / P		2
78-39	Nuege	Wisconsin	Nat. Wildl. Fed.	1960	-	Gen. / P	+ -	/ P		1
78-40	Hamer	Wis.	Wis. Wildl. Conserv. Dep.	1957	0	Gen. / P	±	F / F		2
78-41	Lehma	Tex.	F&W Serv.	1941	0	Gen. / F	-	F / F		2
78-54	Frary	NM (S.E.)	NM Dep. G&F	1955	- *	/ p	0	F /	None	4
78-141	Hamer	US	JWM	1963	-	/ p	-	P / P		1
78-142	Black	US	Intermountain For. Range Exp. Stn.	1971	0 *	Gen. / F	- + $\overline{0}$	F / F	CR	3

SPECIES . PRAIRIE DOG

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-100	Osbor	Okla.	Ecology	1949	0	C P	+	F P	G	3

SPECIES QUAIL (BOBWHITE, GAMBLE and SCALED)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-36	Snyde	Colo.	Colo. Div. G,F,P	1970	- *	/ P	±	F / P	P	
78-50	Steel	Okla.	Okla. Dep. Wildl. Conserv.	1959	0 *	C / P	±	P / P	None	
78-55	Jacks	Tex.	Tex. Parks & Wild Dep.	1964	- *	/ P	0	F /	X	
78-105	Schem	Okla.	Wildl. Monogr.	1961	0	/ F	-	F / P	X	
78-133	Brown	Ariz.	For. Serv.	1971	+ *	C / G	±	G / P	P	
78-143	Brown	Ariz.	Ariz. G&F Dep.	1978	0 *	Gen. / F	±	G / F	P	

SPECIES RABBIT

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-53	Sadle	Mo.	Mo. Dep. Conserv.	1972	- *	P	-		None	1
78-96	Flind	Colo.	JRM	1975	+ *	C P	± 0	X F	P	2
78-97	Taylo	Ariz.	J. For.	1935	+ *	C F	±	X F	F	2

SPECIES . REPTILE

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-94	Busac	Calif.	Bio. Conserv.	1974	+, *	X	-	X P	G	2

SPECIES . RODENT (GENERAL)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-52	Tester	Minn.	Minn. Div. G&F	1961	0 *	C / F	$\frac{+}{0}$	G / P	CR	2
78-99	Fitch	Calif.	Ecology	1949	0	C / P	±	F / P	G	3
78-101	Quast	Calif.	J. Mammal.	1954	+ *	C / F	$\overset{+}{0}$	G / F	P	3
78-131	Norri	NM	NM Ag. Exp. Stn.	1950	+ *	C / X	-	X / F	P	1
78-142	Black	Utah	Intermountain For. Range Exp. Stn.	1971	+ *	C / X	±	X / G	P	2

SPECIES SHEEP (BIGHORN)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-103	Bear	Colo.	Colo. Div. Wildl.	1972	+ *	C,S G	-	G F	F	2
78-104	Berwi	Mont.	Northwest Sci.	1968	0	C,S F	-	F G	G	3

SPECIES . SQUIRREL (GRAY)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-37	Goodr	Tex.	Tex. Parks & Wildl. Dep.	1961	-	Gen. CR	-	F P	G	1

SPECIES . SQUIRREL (GROUND)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-136	Howar	Calif.	Calif. For. Range Exp. Stn.	1959	0 *	C	Q	F G	F	4

SPECIES . WATERFOWL

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-4	Mundi	Mont.	JWM	1976	*	C / G	+ —	G /	None	
78-11	Anders	Calif.	Calif. F&G	1956	-	C / CR	—	P /		
78-22	Smith	Mont.	JWM	1953	0	/ G	+	G /		2
78-23	Shear	S.D.	JWM	1960	+	/ G	+	F /		3
78-24	Glove	Iowa	JWM	1956	-	C / F	+ —	G /		1
78-25	Kirsc	N.D.	JWM	1969	+	C / X	-	F /		3
78-26	Martz	N.D.	JWM	1967	-	/ F	-	F /		1
78-27	Burge	Iowa	JWM	1965	-	/ P	+	P /		1
78-32	Giers	Mont.	JRM	1975	+	C / X	-	G / G		3
78-43	Nelso	Utah	Utah Div. Wildl. Resour.	1954	+ *	C / G	-	X / F	None	3
78-44	Anders	S.D.	S.D. Dep. G,F&P	1963	+ *	C / G	-	F / P	None	3
78-45	Logan	Okla.	Okla. Dep. Wildl. Conserv.	1974	0 *	C / P	-	G / F	None	2
78-46	Green	Mo.	Mo. Conserv. Comm.	1952	0 *	C / G	-	F / P	P	3
78-47	Kozli	Calif.	Calif. Dep. F&G	1966	0 *	C / F	0	G / P	P	2
78-48	Georg	Calif.	Calif. Dep. F&G	1966	0 *	C,S / F	0	G / P	P	2
78-113	Crest	Canada	Creston Valley Wildl. Manage. Auth.	1974	+ *	C,S,G,H / X	0̄	X / X	X	2
78-118	Capel	Mo.	Mo. Univ. MS Thesis	1965	+ *	C / F	- 0	F / G	P	2
78-119	Clark	Oregon	Oregon State Univ.	1977	+ *	C / F	-	F / P	P	3

SPECIES. WATERFOWL

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-121	Bue	S.D.	Trans. N. Am. Wildl. Nat. Resour. Conf.	1952	0	C F	-	F P	P	3
78-124	Welle	Utah	Condor	1958	+ *	C G	-	G F	P	3
78-125	Benne	Iowa	Trans. N. Am. Wildl. Nat. Resour. Conf.	1937	+ *	C F	±	F F	P	3
78-126	Gunne	Idaho	JRM	1972	+ *	C F	-	F F	P	3
78-127	Bue	Mont. N.&S.D.	Fish & Wild. Ser.	1964	+	C F	±	F F	P	3
78-128	Evans	S.D.	Rocky Mt. For. Range Exp. Sta.	1977	+ *	C G	±	G F	G	3
78-138	Hilli	Utah	Utah State Univ.	1974	0 *	C G	-	G G	P	3

SPECIES . WILDLIFE (GENERAL)

Index No.	Author	State	Agency	Date	Obtain	Grazing	Impacts	Habitat, Compet.	Food Habits	N.M. Applic.
78-12	US Bur	NM (N.W.)	BLM	1977		C / F	±	F /	P	
78-13	Natio	U.S.	Nat. Academy Sci.	1976		C,S / F	±	F /	P	
78-71	DeArm	Okla.	Okla. Dep. Widl. Conserv.	1951	0 *	C,S,H / F	—	P / P	CR	2
78-129	Macki	Mont.	Trans. N. Am. Wild. Nat. Resour. Conf.	1978	+ *	C,S,H / G	±	P / G	P	2

SECTION D

BASE INDEX

IMPACTS OF RESOURCE MANAGEMENT PRACTICES ON KEY WILDLIFE AND ENDANGERED PLANT HABITATS ON PUBLIC LANDS IN NEW MEXICO

NEW MEXICO

78-000* Schemnitz, S.D.: Impacts of resource management practices on key wildlife and endangered plant habitats on public lands in New Mexico.

78-001 Zwickel, F.C.: Some effects of grazing on blue grouse during summer.

78-002 Smith, A.D.: Effects of mule deer and livestock upon a foothill range in northern Utah.

78-003 Hungerford, C.R.: Response of Kibab mule deer to management of summer range.

78-004* Mundinger, J.G.: Waterfowl response to rest-rotation grazing.

78-005 Crawford, J.A.: Effects of land use on lesser prairie chickens in Texas.

78-006* Mackie, R.J.: Range ecology and relations of mule deer, elk, and cattle in the Missouri River breaks, Montana.

78-007 Schwartz, C.C.: Pronghorn dietary quality relations to forage availability and other ruminants in Colorado.

78-008* Hansen, R.M.: Foods of elk and other ungulates at low elevations in northwestern Colorado.

78-009 Fitch, H.S.: A study of coyote relationships on cattle range.

78-010 Lynch, J.J.: Management significance of damage by geese and muskrats of Gulf Coast marshes.

78-011 Anderson, M.E.: A waterfowl nesting study on the grasslands, Merced county, California.

78-012 U.S. BLM: The proposed Rio Puerco livestock grazing management programs.

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